1. σbook\_name(book) = “x”
2. π join\_date(customer) – π join\_date [ customer ⋈ (date1>date2)(customer)]
3. π year\_published(book) – π year\_published [ book ⋈ (year1>year2)(book)]
4. π(\*)(order)
5. π(quantity)(σ(book.name)[ρo(order) ⋈ πbook\_id(book) ρb(book) [b.book\_id = o.book\_id] = ”y”])
6. π(first\_name, last\_name)( σbook\_name[ρo(order) ⋈(b.order\_id = o.order\_id) πbook\_id(book\_order) ρb(book\_order) ⋈ (ρba(book\_authors) ⋈ (ba.author\_id = a.author )ρa(author))][o.order\_date >= “x” ^ o.order\_date < “y”])
7. π (customer\_id, quantity)( ρo(order) ⋈(c.customer\_id = o.cutomer\_id) ρc(customer) ⋈( bo.Order\_id = o.Order\_id)ρbo(book\_order))
8. π book\_name [ π translator\_id - π translator\_id(book ⋈ (count(translator\_id) < count(translator\_id2))(book)]
9. π(Book\_name, Order\_date, Quantity, Sell\_price)[ σ(customer\_id)( ρo(order) ⋈ (c.Customer\_ID = o.Customer\_ID) ρc(customer) ⋈(bo.Order\_id = o.Order\_id) (ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book)) = “y”]
10. π(Book\_name, Order\_date, Quantity, Sell\_price, Quantity, Order\_status) [σ(customer\_id)( ρo(order) ⋈(c.Customer\_ID = o.Customer\_ID) ρc(customer) ⋈(bo.Order\_id = o.Order\_id) (ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(inv.Book\_id = bo.Book\_id) ρinv(inventory) ) = “x”]
11. π(Quantity,Wieght,Method\_price\_per\_kilo,COALESCE(Quantity,0)\*COALESCE(Wieght,0)\*COALESCE(Method\_price\_per\_kilo,0)) [σ(order\_id)(ρo(order) ⋈ (o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(bo.Shipment\_id = sh.Shipment\_id) ρsh(shipment) ⋈(sh\_me.Shipment\_method\_id = sh.Shipment\_method\_id) ρsh\_me(shipment\_method) = “x”
12. π(Order\_id, count(Shipment\_id, Order\_date, Order\_status, Address\_street))[ (ρo(order) ⋈ (o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(bo.Shipment\_id = sh.Shipment\_id) ρsh(shipment) ⋈(sh\_me.Shipment\_method\_id = sh.Shipment\_method\_id) ρsh\_me(shipment\_method) ⋈( sh.Address\_id = ad.Address\_id) ρad(address)]
13. π(Quantity,Wieght,Method\_price\_per\_kilo,Company\_name)[ σ(order\_id)(ρo(order) ⋈(o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(bo.Shipment\_id = sh.Shipment\_id) ρsh(shipment) ⋈(sh\_me.Shipment\_method\_id = sh.Shipment\_method\_id) ρsh\_me(shipment\_method) ⋈(com.Company\_id = sh\_me.Company\_id) ρcom(company)]
14. π(Company\_name,sum(COALESCE(Quantity,0)\*COALESCE(Wieght,0)\*COALESCE(Method\_price\_per\_kilo,0)))[ σCompany\_name(ρo(order) ⋈(o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(bo.Shipment\_id = sh.Shipment\_id) ρsh(shipment) ρsh\_me(shipment\_method) ⋈(com.Company\_id = sh\_me.Company\_id) ρcom(company)) =”XPress”]
15. π (sum(Total\_price))[σ(payment\_method)(ρo(order) ⋈ (o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book))=”bit”]
16. π(sum(Sell\_price))[ σorder\_id((σorder\_date(ρo(order)⋈(o.Order\_id = bo.Order\_id) ρbo(book\_order)) >= DATE\_SUB(NOW(),INTERVAL 1 YEAR) ^ o.Order\_date < CURDATE()] > ( ρo(order)⋈(o.Order\_id = bo.Order\_id) ρbo(book\_order)) >= DATE\_SUB(NOW(),INTERVAL 2 YEARS) ^ o.Order\_date < CURDATE())]
17. π(company\_name,count(Company\_id))[ σ(company\_name)(ρo(order) ⋈(o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(bo.Shipment\_id = sh.Shipment\_id) ρsh(shipment) ⋈(sh\_me.Shipment\_method\_id = sh.Shipment\_method\_id) ρsh\_me(shipment\_method) ⋈(com.Company\_id = sh\_me.Company\_id) ρcom(company)) = “XPress”]
18. π(Shipment\_id, Book\_name, Publisher\_id, count(Publisher\_id))[ σ(count(Publisher\_id))(ρo(order) ⋈(o.Order\_id = bo.Order\_id) ρbo(book\_order) ⋈(b.Book\_id = bo.Book\_id) ρb(book) ⋈(bo.Shipment\_id = sh.Shipment\_id) ρsh(shipment) ρsh\_me(shipment\_method) ⋈(com.Company\_id = sh\_me.Company\_id) ρcom(company))>1]
19. π(Customer\_ID, First\_name, Last\_name, Phone\_num)[ σ(order\_date)[ ρo(order) ⋈( c.Customer\_ID = o.Customer\_ID) ρc(customer) ⋈(c.Customer\_phone = p.Phone\_id) ρp(phone) <= DATE\_SUB(NOW(),INTERVAL 2 YEAR)]
20. σ( LastModify\_date)[ ρo(order) ⋈( c.Customer\_ID = o.Customer\_ID) ρc(customer) ⋈(c.Customer\_phone = p.Phone\_id) ρp(phone)) <= DATE\_SUB(NOW(),INTERVAL 2 week) ^ Order\_status = 3)]
21. σ (sum(Quantity))(inventory)
22. 1. π (sum(Quantity), sum(Total\_price))[ σOrder\_date(store\_order) >= “D1” ^ Order\_date < “D2”]
    1. σ( payment\_amount)(π (sum(Payment\_amount), sum(Sell\_price))[ σ(Order\_date)( ρo(order) ⋈(o.Order\_id = bo.Order\_id) ρb(book\_order) >= '2016-09-01' ^ Order\_date < '2020-08-01' ) ⋈ π(sum(Quantity),sum(Total\_price))σ(Order\_date) >= '2016-09-01' ^ Order\_date < '2020-08-01')) ⋈ payments)(month = inptmonth, year = inptyear)
23. π (YEAR(Order\_date),month(Order\_date))[ σ(Order\_date)(orders) >= DATE\_SUB(NOW(),INTERVAL 1 YEAR) and Order\_date < CURDATE())
24. π(sum(COALESCE(Salary\_hour\_num,0)\*COALESCE(Salary\_amount\_per\_hour,0))[ σ(salary\_id = “z” ^ Salary\_month=”m”)(salary)
25. π (Employee\_id,count(Employee\_id)[ σ(year(Order\_date)=”y” ^ month(Order\_date)=”x”)(order)]